Energy solutions for a changing world

Addressing the Throughput Incentive and Digging into Decoupling

Pennsylvania PUC En Banc Session in Docket M-2015-2518883 Harrisburg PA

Presented by Richard Sedano

March 3, 2016

The Regulatory Assistance Project

50 State Street, Suite 3
Montpelier, VT 05602

Phone: 802-223-8199
www.raponline.org

This Presentation

- Basics of decoupling
  - Why states do it
  - The Calculations
  - Design Principles

If the answer is decoupling, what is the question?

- Traditional regulation motivates a utility
  - to increase sales, and
  - to resist reducing sales
  - This is the '**throughput incentive**'

Is there something wrong with the throughput incentive?

- There are many reasons why utility sales might go up or down, but **what should the utility motivation be**?
  - Aligning with the public interest
  - An aggressive EERS is likely to be in conflict with the throughput incentive

Deeper: What's the Problem with the Throughput Incentive?

- Utility rate designs recover fixed (investment and labor) costs in the kWh charge
- Instability - If sales decline, profits decline, if sales increase, profits increase
- EE, DG, other policies reduce sales …
  - Not just what utility does, but markets do too
- Decoupling is a tool to address the throughput incentive

At a high level, what does decoupling do?

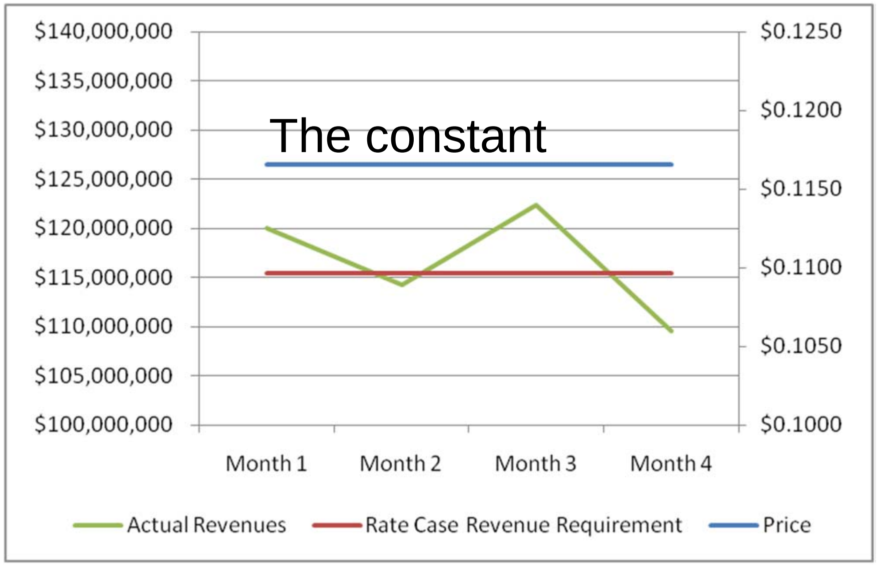
- Decoupling is a regulatory mechanism
  - to ensure that utilities have a reasonable opportunity
  - to collect roughly the same revenues that they would under conventional regulation,
  - independent of changes in sales volume **for which the regulator wants them to be indifferent**.

What does decoupling do?

- Adjusts rates (prices) and usually revenues between rate cases
- Relies on found revenue requirement
- When sales deviate from rate case assumption, rate is adjusted to collect calculated revenue
  - Basis can reflect changes owing to trends or forecasted events, an added level of complexity

A Well-Designed Decoupling Mechanism Provides Predictable Revenue Independent of Sales

Traditional Regulation:
Constant Price =
Fluctuating Revenues/Bills



Revenues = Price * Sales

Decoupling:
Precise Revenue Recovery =
Fluctuating Prices

Price = Target Revenue ÷ Sales

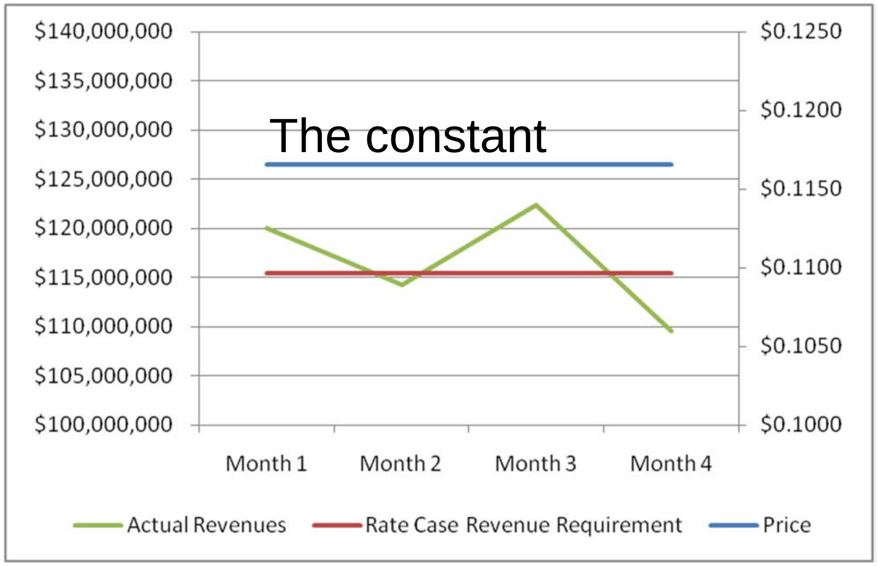
Revenue Regulation: a more descriptive term for what we are doing

Comparing Decoupling with Traditional Regulation

- Traditional regulation sets prices and lets revenues rise and fall with sales volumes

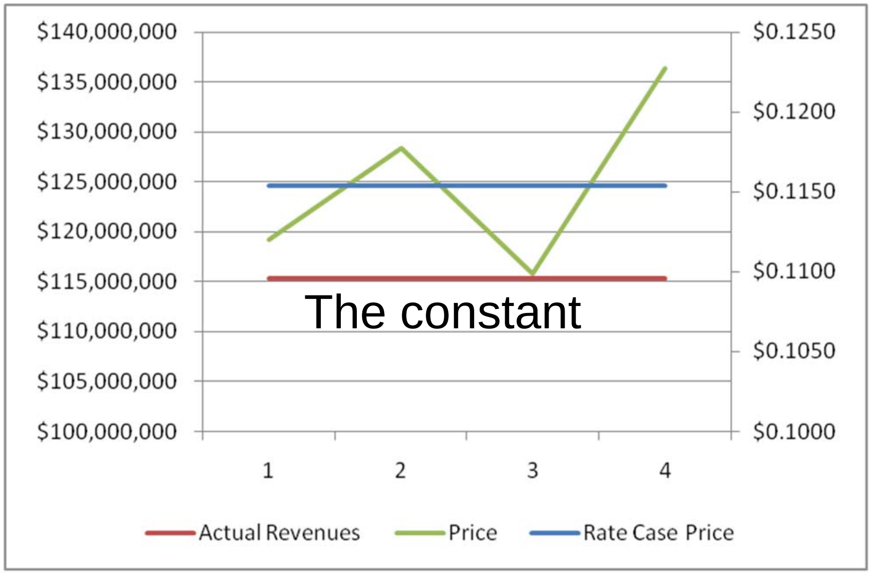
A Well-Designed Decoupling Mechanism Provides Predictable Revenue Independent of Sales

Traditional Regulation:
Constant Price =
Fluctuating Revenues/Bills



Revenues = Price * Sales

Decoupling:
Precise Revenue Recovery =
Fluctuating Prices



Price = Target Revenue ÷ Sales

Simple Calculations: Basic Regulation

- Rate Base x Rate of Return = Return
- Return + Operating Expenses + Taxes = Revenue Requirement
- Revenue Requirement / Sales (kWh) = Rates ($/kWh)

The Decoupling Calculation

- Utility Target Revenue Requirement determined with traditional rate case
  - By class & by month (or other period coinciding with how often decoupling adjustment is made)
- Each future period <u>*will have*</u> different <u>*actual*</u> unit sales than Test Year
- The difference (positive or negative) is flowed through to customers by adjusting Price for that period (see Post Rate Case Calculation)

Periodic Decoupling Calculation		
From the Rate Case		
Target Revenues		$10,000,000
Test Year Unit Sales		100,000,000
Price	$	0.10000
Post Rate Case Calculation		
Actual Unit Sales		99,500,000
Required Total Price	$	0.1005025
Decoupling Price	$	0.0005025

No change in target revenue

The Revenue per Customer Decoupling Calculation

- In any post-rate case period, the Target Revenue for any given volumetric price (i.e. demand charge or energy rate) is derived by multiplying the RPC value from the rate case by the then-current number of customers

Periodic Decoupling Calculation		
From the Rate Case		
Target Revenues		$10,000,000
Test Year Unit Sales		100,000,000
Price	$	0.10000
Number of Customers		200,000
Revenue Per Customer (RPC)		$50.00
Post Rate Case Calculation		
Number of Customers		200,500
Target Revenues ($50 X 200,500)		10,025,000
Actual Unit Sales		99,750,000
Required Total Price	$	0.1005013
Decoupling Price “Adjustment”	$	0.0005013

Rate Design Elements (nothing new here)

- Use a Customer Charge for customer specific costs (metering, billing)
- Use a Demand Charge (generally for larger customers) for costs that vary with peak demand
- Energy charge generally recovers most production, T&D costs
  - Full recovery in volumetric charges
  - Time, Usage sensitivity (inclining blocks)

Effect of decoupling on rate design

Decoupling and Rate Design

- Rate design is getting increased attention for the price signals sent to customers
  - Align price signals to public policy
  - Decoupling does nothing to interfere with price signal or allocation objectives, public policy orientation is consistent

How Changes in Sales Affect Earnings

	Revenue Change		Impact on Earnings		
% Change in Sales	Pre-tax	After-tax	Net Earnings	% Change	Actual ROE
5.00%	$9,047,538	$5,880,900	$15,780,900	59.40%	17.53%
4.00%	$7,238,031	$4,704,720	$14,604,720	47.52%	16.23%
3.00%	$5,428,523	$3,528,540	$13,428,540	35.64%	14.92%
2.00%	$3,619,015	$2,352,360	$12,252,360	23.76%	13.61%
1.00%	$1,809,508	$1,176,180	$11,076,180	11.88%	12.31%
0.00%	$0	$0	$9,900,000	**0.00%**	11.00%
-1.00%	-$1,809,508	-$1,176,180	$8,723,820	**-11.88%**	9.69%
-2.00%	-$3,619,015	-$2,352,360	$7,547,640	**-23.76%**	8.39%
-3.00%	-$5,428,523	-$3,528,540	$6,371,460	**-35.64%**	7.08%
-4.00%	-$7,238,031	-$4,704,720	$5,195,280	**-47.52%**	5.77%
-5.00%	-$9,047,538	-$5,880,900	$4,019,100	**-59.40%**	4.47%

Full Decoupling

- All effects on sales reflected
  - Sales, weather, economy
  - Throughput incentive fully resolved
- Options to partially address the throughput incentive
  - normalizations

Two approaches to Decoupling

both start with rate case revenue requirement

- Revenue per customer
  - Calculated by dividing rev reqmt by number of customers = RPC
  - Distinguish appropriate classes
  - Periodic **Ministerial** process: RPC x actual customers = new rev reqmt, then divide by actual sales = new rates
  - "K factor" option to account for identified trends and future changes
- Attrition
  - Periodic **Evidentiary** proceedings: what has changed, reset rev reqmt
  - Use actual sales and new rev reqmt to set new rate
  - Comfort needed in this "exception-based" process

Why RPC might be appealing

- In many utility systems, short term costs are correlated with customer counts
  - Especially in a territory that is not "built out"
  - It might be lumpy, but Δ customer count still representative of Δ fixed cost

What is this K Factor?

Why might the future be different from the past?

- Adjust for identified trends or forecasts that are likely to change the basis of the revenue requirement
  - Inflation
  - Productivity
  - Size of household
- Can be applied to the revenue requirement
  - Or can be applied to the RPC
- Has a shelf life as long as the assumption is reliable
- Decoupling 201 – balance value with complexity

Decoupling Advantages

- RPC simple to administer, customizable
- Stabilizes utility revenues
- Utility focuses on costs it can control,
- Removes utility throughput incentive
  - Accommodating aggressive EE
  - Maintaining rate design as price signal
  - Focus on Policy Priorities? Service?
- Delay general rate case (and associated attention and expense) to when driven by underlying cost shifts (not by usage changes)
- Process ought to reveal priorities

Decoupling And Performance

- Decoupling does not promote:
  - EE, DG, etc.
  - It does remove sales-driven attitudes that utilities properly have in traditional system
  - It can promote cost cutting
- Decoupling is compatible with a performance system
  - Build in public interest priorities (new)
  - Roll any rewards or penalties into periodic rate adjustment
  - Protect against disruptive cost cutting

Decoupling Downsides

- Rates change more frequently (generally < power cost adjustment riders) and outside a general rate case
- Great success with EE and DG will increase rates, even as total costs may ↓↓
  - Note that EE participants tend to save far more than rates tend to rise
- PUC, others unfamiliar with decoupling
- Delays rate cases, which can be illuminating

How Does Decoupling Differ from Conventional Regulation

- Conventional Reg.
  - Set rates based on cost, and let the revenues flow as sales volumes change between rate cases.
- Decoupling
  - Set revenues based on cost, and let the rates flow as sales volumes change between rate cases.

Frequent Rate Cases

- Having rate cases every year means utility will not keep extra revenue, “the margin,” from increased throughput very long
- But
  - Rate cases are expensive
  - Consume the time of your best thinkers
  - Decision-makers reacting, not looking ahead
  - Utility still has the throughput incentive

Design Goal for Decoupling

- Over time, utility revenues track what frequent rate cases would have produced
  - Note emphasis on revenues
  - Because over the term of the decoupling mechanism, non-power costs do not change that much
- Works best if decoupling becomes the norm

Decoupling comes in various colors

Decoupling Choices Regulators Are Asked to Make

- Apply to non-power costs or all costs?
- Frequency of rate adjustments?
- Limits on rate adjustments, disposition of deferrals
- Assessing the risk of the firm, WACC, what to do?
- Factor in weather?
- RPC, attrition, both?
- Include industrial customers?
- Trigger for next mechanism?
- Overlay performance?
- What to do with earnings above and below target ROE?
- Other public interest progress

Some proposals to solve our problem are **not** decoupling

Decoupling is Not

- Straight fixed variable rate design
  - Shifting all short run fixed costs to the customer charge
  - Volumetric rates fall below long run marginal cost

Decoupling is not

- A lost revenue adjustment mechanism
  - That identifies revenues lost specifically due to consumer funded energy efficiency programs and restores that revenue
  - Throughput incentive remains strong

Third Party Administration of EE

- May address concerns about EE program design and delivery
- But does not address the motivation of the utility to support EE and DG or its motivation to load build

Decoupling Choices
Public Process is Important

- Making these choices in a public, **transparent** process helps to promote a **common** understanding, that **priorities** are built in, that there is **value** in moving from traditional regulation

Advanced Decoupling Choices

- Use the K factor for trends and forecasts
  - i.e. The MacMansion effect, or Electric Vehicles, or structural cost Δ (i.e. transmission capital), or productivity
- In RPC, adjust customers for outages
  - Motivates low outage frequency and duration
- Price adjustments monthly, current (MD)
  - Conveys information to customers

Words matter: Advantages of the term "Revenue Regulation"

- Focus on revenue
- Focus on stabilizing revenue
- Avoids conflation of meanings attached to decoupling
- Juxtaposes with "Rate Regulation" to aid compare and contrast with a rate cap
- Juxtaposes with "Performance- or Incentive-regulation"

Communicating with Customers

- Answer: why are my rates changing?
  - With relevant policy context and trends
  - Transparency makes for clear messages
- How is decoupling changing utility priorities and decisions?
- How is utility performance?
  - Hopefully good news
- What do customers want (for future)?
- Is there **coherence with policy goals**?

How Does the "Utility of the Future" Happen?

- **Service** (not throughput) the priority
- **Customers**: service and resources
- Public Policy - driven
- Risk Management to manage cost
- Regulation focuses on value

- How can decoupling assist?

Oregon PUC Order 09-020 pg 27

"… PGE does have the ability to influence individual customers through direct contacts and referrals to the ETO. PGE is also able to affect usage in other ways, including how aggressively it pursues distributed generation and on-site solar installations; whether its supports improvements to building codes; or whether it provides timely, useful information to customers on energy efficiency programs. We expect energy efficiency and on-site power generation will have an increasing role in meeting energy needs, underscoring the need for appropriate incentives for PGE."

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

rsedano@raponline.org

Puget Sound: recent decoupling approval

- RPC, applied to delivery costs (power has its own adjustment)
- Service quality mechanism pre-existed
- More EE, low income Wx and bill assistance
- K factor addressing historic utility cost ↑
- Rev reqmt stale, no change to rate design
- No EE performance
- Resolved other local issues

One Innovative Proposal
Tucson Electric - Arizona

- Annual decoupling adjustment
- Inverted seasonal residential rate design
- Any surcredits applied to initial block
- Any surcharges applied to end blocks

		Summer		Winter		
Customer Charge		$ 7.00		$ 7.00		
First 500 kWh		$ 0.080		$ 0.073		Minus any decoupling credit
Next 2,500 kWh		$ 0.102		$ 0.093		Plus any decoupling surcharge
Over 3,000 kWh		$ 0.120		$ 0.113		Plus any decoupling surcharge

Decoupling and Risk

Without Decoupling	Ratio	Cost	Weighted With-Tax Cost of Capital
Equity	45%	11.0%	7.62%
Debt	55%	8.0%	2.86%
Weighted Cost			10.48%
Revenue Requirement: $1 Billion Rate Base			$ 104,800,000
With Decoupling			
Equity	42%	11.0%	7.11%
Debt	58%	8.0%	3.02%
Weighted Cost			10.13%
Revenue Requirement: $1 Billion Rate Base			$ 101,280,000
Savings Due to Decoupling Cost of Capital Benefit:			$ 3,520,000